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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,960	12/09/2003	Masami Tomita	246440US2	2716
22850	7590	10/16/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER DOTE, JANIS L	
			ART UNIT 1795	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/729,960

Applicant(s)

TOMITA ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7 and 9-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/6/07</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The examiner acknowledges the cancellation of claims 6 and 14-29, and the amendments to claims 1 and 13 filed on Aug. 24, 2007. Claims 1-5, 7, and 9-13 are pending.

2. The examiner has considered the US patent application listed in the "List of related cases" in the Information Disclosure Statements (IDS) filed on Jun. 6, 2007.

3. The rejection of claims 1-7 and 9-12 under 35 U.S.C. 103(a) over US 2003/0027074 A1 (Emoto'074) combined with the other cited references, where Emoto'074 qualifies as prior art under 35 U.S.C. 102(a), set forth in the office action mailed on Apr. 24, 2007, paragraph 13, has been withdrawn. Emoto'074 is not prior art under 35 U.S.C. 102(a), because applicants have perfected their claim to foreign priority under 35 U.S.C. 119 for the subject matter recited in instant claims 1-5, 7, and 9-12. The certified English-language translation of the priority document, Japanese Patent Application 2002-358435, which was filed on Aug. 24, 2007, provides antecedent basis as set forth under 35 U.S.C. 112, first paragraph, for the subject matter recited in instant claims 1-5, 7, and 9-12.

The rejection under 35 U.S.C. 103(a) of claims 1-5, 9, 10, and 13 over US 6,235,441 B1 (Tanikawa) combined with the other

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cited prior art, set forth in the office action mailed on Apr. 24, 2007, paragraph 15, has been withdrawn in response to the amendment to claim 1 filed on Aug. 24, 2007. That amendment added the limitation of now-cancelled claim 6 that the releasing agent has a melting point of from 60 to 120°C and is present in the toner in an amount of from 1 to 20% by weight. As discussed in the rejection in paragraph 15, in example 57 of Tanikawa, Tanikawa exemplifies forming a toner image with a toner that comprises a binder resin and a polyethylene wax as the releasing agent. Tanikawa also teaches that the toner has a storage modulus and a loss tangent that are within the ranges recited in instant claim 1. However, Tanikawa does not disclose the melting point of the polyethylene wax used in example 57. Nor is there enough evidence in the present record for a person having ordinary skill in the art to reasonably presume that the polyethylene wax used in example 57 has a melting point as recited in instant claim 1.

4. The examiner notes that the instant specification at page 38, line 16, to page 39, line 5, discloses that the parameter SF-1 recited in the instant claims is determined from the following equation:

$$SF-1 = \left[\frac{MXLNG^2}{AREA} \times \left(\frac{100\pi}{4} \right) \right],$$

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where MXLNG is an "absolute maximum length of the toner particle and AREA is a projected area of the toner particle.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Instant claim 13 is indefinite in the phrase "said toner image is formed by the steps comprising supplying said toner to a latent electrostatic image formed on a photoconductor and applying an alternating field thereby developing said latent image prior to the fixing" (emphasis added) for lack of unambiguous antecedent basis for the term "said toner image" in claim 1, from which claim 13 depends. The toner image recited in claim 1 is fixed on a "recording medium," not on a photoconductor. It is not clear how "said toner image" is fixed on a recording medium, when the toner is on a photoconductor.

Applicants' arguments filed on Aug. 24, 2007, have been fully considered but they are not persuasive.

Applicants assert that the amendment to claim 13 overcomes the rejection. However, for the reasons discussed above, the amendment did not overcome the rejection.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. US 2003/0027074 A1 (Emoto'074) was published on Feb. 6, 2003, and has an effective filing date of Jul. 5, 2002. Both dates are prior to the instant application filing date of Dec. 9, 2003.

With respect to the subject matter recited in instant claim 13, Emoto'074 qualifies as prior art under 35 U.S.C. 102(a) because applicants have not perfected their claim to foreign priority under 35 U.S.C. 119 to the foreign priority document, Japanese patent application No. 2002-358435, for the subject matter recited in claim 13. The certified English-language translation of that priority document, which was filed on Aug. 24, 2007, does not appear to provide an adequate written description of the subject matter recited in instant claim 13 as required under 35 U.S.C. 112, first paragraph. In the certified

English-language translation, the examiner could not find an adequate written description, as required under 35 U.S.C. 112, first paragraph, of the process steps recited in instant claim 13. Nor did applicants indicate where in the translation by page and line number there is an adequate written description of those steps recited in instant claim 13.

With respect to subject matter recited claims 1-5, 7, and 9-13, Emoto'074 qualifies as prior art under 35 U.S.C. 102(e) and 103(c). Applicants have not shown that Emoto'074 and the instant application were owned by or subject to an obligation of assignment to the same person at the time the invention in the instant application was made.

Accordingly, rejections based on Emoto'074 are set forth in infra.

9. Claims 1-5, 7, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto'074, as evidenced by applicants' admissions at page 32, lines 16-25, page 33, lines 10-14, and page 110, lines 1-2, of the instant specification (applicants' admission I), combined with:
(1) WO 02/056116 (Emoto'116); (2) Japanese Patent 2000-267331 (JP'331); (3) US 2003/0113650 (Suwabe); and (4) US 5,797,070 (Waki).

See the USPTO English translations of JP'331 and Emoto'116 for cites.

Emoto'074 discloses an image forming method comprising the step of oil-less fixing a toner image on a recording medium with a fixing unit comprising an endless fixing belt 3 that is heated by a heating roller 1 comprising a heater 5 and a pressure roller 4. Fig. 1 and paragraphs 0124-0127 and 0330. Because the Emoto'074 fixing step requires that no oil be applied to the surface of the endless fixing belt 3, it meets the limitation of "no oil is applied per A4 size" recited in instant claim 1.

Emoto'074 discloses that the toner image is formed with a toner comprising toner particles that comprise a colorant, a binder resin, and a wax as a releasing agent. Example 1 in paragraphs 0242-0245 and in Table 1 at page 21. The wax has a melting point of 81°C and is present in an amount of 14% by weight based on the total weight of the toner particles. The wax amount of 14% by weight was determined from the information provided in example 1. The wax is dispersed as particles in the toner particles. The dispersed wax particles having a particle diameter of 0.1 to 2 μm accounts for 90% of all of the wax particles. The wax particles are dispersed in the toner particles as shown in Fig. 5, which shows that the wax particles are concentrated in the vicinity of the surface of the toner

particles as observed with a transmission electron microscope (TEM). See paragraphs 0193-0195. The Emoto'074 wax meets the releasing agent limitations recited in instant claims 1 and 7. The binder resin comprises a urea-modified polyester resin and an unmodified polyester resin. The binder resin comprises a tetrahydrofuran-soluble component that exhibits a main peak molecular weight at 4000 and a number-average molecular weight of 2500. The binder resin has a Tg of 60°C and an acid number of 7 mg KOH/g. Paragraph 0150, lines 6-10; and Table 1. The Emoto'074 binder resin in example 1 meets the binder resin compositional limitations recited in instant claims 9-12. Emoto'074 further teaches that the toner can be made by using the process steps recited in the product-by-process limitation of instant claim 12. See paragraph 0216.

The Emoto'074 toner particles have a mean roundness of 0.96 and a weight average particle size of 6 µm. See Table 2 at page 21, example 1. The weight average particle diameter of 6 µm is within the range of 3.0 to 7.0 µm recited in instant claim 1. Emoto'074 also exemplifies toner particles having a weight average particle size of 5 µm, which is within the range of 3.0 to 5.0 µm recited in instant claim 2. See the toner in example 6 at paragraph 0267.

Emoto'074 does not disclose that its toner particles have

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the storage moduli and "maximum of loss tangent" as recited in instant claim 1.

According to the instant specification at page 32, lines 16-18, a "toner having a storage modulus G' of less than 5.5×10^5 Pa at 80°C may not be satisfactorily stored, although it may be fixed without problems." The instant specification at page 32, lines 19-25, teaches that if the storage modulus G' at 180°C is less than 5.5×10^2 Pa, the "toner . . . may not have sufficient elasticity to prevent hot offset"; if the storage modulus G' at 180°C is more than 1.0×10^4 Pa, the "toner . . . may have excessively high elasticity and may have a higher lowest fixing temperature, although it may exhibit sufficient hot-offset resistance." The specification at page 33, lines 10-14, further teaches if the maximum loss tangent is less than 1.5, "the toner may not have sufficient glossiness"; and if the maximum loss tangent is more than 8.0, "the toner may not have satisfactory hot-offset resistance, although the toner may have sufficient glossiness." The instant specification at page 110, lines 1-2, states that "a suitable glossiness [determined at an incident angle of 60-degree using a glossmeter] is from about 10% to about 30%."

As discussed supra, the Emoto'074 toner in example 1 meets the toner compositional limitations recited in instant claims 1,

7, and 9-12. According to Emoto'074, its fixing method using the toner of example 1 provides good image quality images, low temperature fixing, "hot offsetting properties in an oil-less use," and glossiness of color toner. Paragraph 0062, and Table 2 at page 21, example 1. Table 2 reports that when the toner image formed from the toner in example 1 is fixed with the belt fixing unit, the toner images can be fixed with a "lower-most temperature for toner fixing" of 140°C and the fixed toner images have a "60-degree gloss" of 10% or more at 150°C. The toner has a "hot offsetting temperature" of 220°C and a thermal storability rated "B." See paragraphs 0314-0325. These appear to be the same properties sought by applicants. Because the toner in example 1 of Emoto'074 meets the toner compositional limitations recited in the instant claims; and because the toner appears to have the properties sought by applicants, it is reasonable to presume that the Emoto'074 toner has the storage moduli and maximum loss tangent properties recited in instant claim 1. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Emoto'074 does not disclose that its toner particles have the particle distribution ratio of the weight-average particle diameter (D_v) to the number-average particle diameter (D_n), i.e., D_v/D_n , of 1.00 to 1.25 recited in instant claim 1. Nor

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does Emoto'074 disclose that its toner particles have an average shape factor SF-1 of 100 to 150 and contain particles having a shape factor SF-1 of 160 or more in an amount of 10% by number or less as recited in instant claim 1.

Emoto'116 teaches toner particles having a preferred weight-average particle diameter (D_v) of 3.0 to 6.0 μm and a particle distribution ratio D_v/D_n of 1.00 to 1.15. See the USPTO translation, page 14, lines 14-16. According to Emoto'116, the toner provides high quality images with high resolution. USPTO translation, page 14, lines 8-10. The particle distribution ratio D_v/D_n is within the ranges recited in instant claims 1 and 3. The lower endpoint, 3.0 μm , of the preferred weight average particle diameter range of 3.0 to 6.0 μm is the same as the lower end point of the range of 3.0 to 5.0 μm recited in instant claim 2. Accordingly, the prior art appears to recognize the weight average toner particle size and toner particle distribution ratio D_v/D_n as result-effective variables. The variation of a result-effective variable is presumably within the ordinary skill of a person in the art.

As discussed above, the Emoto'074 toner particles have a mean roundness of 0.96. According to Emoto'074, if the mean roundness is smaller than 0.96, the toner particles are far from spheres. Paragraph 0238, lines 4-5. Waki discloses that it is

advantageous for spherical toners to have a shape factor SF-1 of 100 to 180, preferably from 100 to 140, most preferably from 100 to 130. Col. 8, lines 8-27. The Waki shape factor SF-1 is determined in the same manner as recited in the instant claims. See paragraph 4 above. The Waki preferred and most preferred SF-1 ranges meet the SF-1 ranges recited in instant claims 1 and 4, respectively. Waki discloses that the shape factor SF-1 represents the degree of sphericity of the toner, and a shape factor SF-1 closer to 100 means that the shape of the toner particles is closer to a sphere. Col. 8, lines 29-32. Thus, it appears that the shape factor SF-1 and the average roundness required by Emoto'074 both relate to the spherical shape of the toner particles.

JP'331 and Suwabe each teaches toner particles having an average shape factor SF-1 of 125-140. See the USPTO translation of JP'331, claim 1, and paragraphs 0016, item (ii). Also see Suwabe, paragraphs 0100 and 0101. Both the JP'331 and Suwabe shape factors SF-1 are determined in the same manner as recited in the instant claims. Compare the USPTO translation, paragraph 0016, lines 7-8, and Suwabe, paragraph 0101, with paragraph 4, supra. The references shape factor SF-1 range of 125 to 140 is within the SF-1 range recited in instant claim 1 and within the preferred ranges disclosed by Waki. The SF-1

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range of 125 to 140 overlaps the range of 100 to 130 recited in instant claim 4. The lower endpoint, 125, of the range 125 to 140 is within the shape factor range recited in instant claim 4.

JP'331 further teaches that its toner particles comprise particles having a shape factor SF-1 of 120 or less in an amount of 20% by number or less and particles having a shape factor of 150 or more in an amount of 20% by number or less. See the USPTO translation, claim 1, items (d) and (e), and paragraph 0016, items (iv) and (v).

According to JP'331, if the shape factor SF-1 exceeds 140, the "fluidity of the toner deteriorates, and there is an adverse influence on the transfer property from the initial stage." USPTO translation, 0025, lines 4-6. According to Suwabe, if the shape factor SF-1 exceeds 140, the fluidity of the toner is lower, which "adversely affects the transferability from the start." Suwabe also teaches that if the shape factor SF-1 is less than 125, inferior toner cleaning occurs. Suwabe, paragraph 0102.

JP'331 further teaches that if the amount of toner particles having an SF-1 of 120 or less exceeds the amount of 20% by number, "it is impossible to maintain a good cleaning property for a long period of time." If the amount of toner particles having an SF-1 of 120 or less exceeds the amount of

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10% by number, "the cleaning property becomes poor, and printer contamination and deterioration in reliability take place."

USPTO translation, paragraph 0026, lines 2-3, and paragraph 0029, lines 1-3. JP'331 also teaches that if the amount of toner particles having an SF-1 of 150 or more exceeds the amount of 20% by number, "it is impossible to maintain good transfer characteristics for a long period of time." If the amount of toner particles having an SF-1 of 150 or more exceeds the amount of 10% by number, "unevenness of transfer may take place in the transfer operation." USPTO translation, paragraph 0026, lines 5-6, and paragraph 0029, lines 5-7.

JP'331 exemplifies toner particles having an SF-1 of 126 and comprising particles having an SF-1 of 120 or less of 12.5% by number and particles having an SF-1 of 150 or more of 5.2% by number. See the USPTO translation, Table 1, example 9.

According to JP'331, the toner in example 9 provides good quality images "without unevenness in transfer" and "voids."

USPTO translation, paragraph 0120 and Table 2, example 9.

Accordingly, the prior art appears to recognize the shape factor SF-1, the amount of particles having a shape factor SF-1 of 120 or less, and the amount of particles having a shape factor SF-1 of 150 or more as result-effective variables. The variation of a result-effective variable is presumably within

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the ordinary skill of a person in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Emoto'116, Waki, JP'331, and Suwabe, to adjust, through routine experimentation, the particle size and the shape of the Emoto'074 toner particles in example 1, such that the resultant toner particles have the roundness required by Emoto'074, the weight-average particle size and particle distribution ratio Dv/Dn as recited in instant claims 1-3, the shape factor SF-1 recited in instant claims 1 and 4, and comprise the amount of particles having a shape factor SF-1 of 150 or more as recited in instant claims 1 and 5. It would have also been obvious to that person to use the resultant toner particles in the image forming method disclosed by Emoto'074. That person would have had a reasonable expectation of successfully obtaining an image forming method that provides fixed high quality images with high resolution and with no "unevenness of transfer" and "voids."

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto'074, as evidenced by applicants' admission I combined with: (1) Emoto'116; (2) JP'331; (3) Suwabe; and (4) Waki, as applied to claim 1 above, further combined with US 6,641,967 B2 (Takiguchi).

See the USPTO translations of JP'331 and Emoto'116 for cites.

The claim is rejected for the reasons discussed in the office action mailed on Apr. 24, 2007, paragraph 14, which are incorporated herein by reference.

11. Applicant's arguments filed on Aug. 24, 2007, as applicable to the rejections over Emoto'074 in paragraphs 9 and 10 above, have been fully considered but they are not persuasive.

Applicants assert that the amendment to claim 1 and the filing of the certified translation of the Japanese priority document JP 2002-358435 on Aug. 24, 2007, overcomes the rejections over Emoto'074.

Applicants' assertions are not persuasive. As discussed in paragraph 8, Emoto'074 qualifies as prior art under 35 U.S.C. 102(e) and 103(c). For the reasons discussed in paragraph 8 above, applicants have not disqualified Emoto'074 as prior art under 35 U.S.C. 103(c). For the reasons discussed in paragraph 8 above, applicants also have not perfected their claim for foreign priority under 35 U.S.C. 119 for the subject matter recited in instant claim 13, as required under 35 U.S.C. 112, first paragraph. Accordingly, the rejections of

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claims 1-5, 7, and 9-12, and of claim 13 in paragraphs 9 and 10, respectively, stand.

12. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be

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obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLD
Oct. 8, 2007

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